

REMARKS

An excess claim fee payment letter is submitted herewith for two (2) excess claims.

Claims 1-22 are all the claims presently pending in the application. Claims 1, 4, 6, 8, 10-11 and 13 have been amended to more particularly define the invention. Claims 15-22 have been added to claim additional features of the invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Shakuda (U.S. Patent No. 5,814,533).

This rejection is respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (as recited in the exemplary embodiment of claim 1) is directed to a group III nitride compound semiconductor light-emitting device which includes a semiconductor laminate portion including a light-emitting layer, and a reflection surface disposed so as to be opposite to a side surface of the light-emitting layer. Importantly, the semiconductor laminate portion and the reflection surface are provided in the same chip.

Background art devices may include a reflection surface which is not provided on the same chip (e.g., Application at Figure 4B). In such devices, a large distance (e.g., 200-300 μm) separates the side surface of the light-emitting layer and the reflection surface. Therefore, the light component reflected is a light component within a very small angle (Application at page 22, lines 1-9).

The claimed invention, on the other hand includes a reflection surface which is provided in the same chip as the semiconductor laminate portion (Application at page 3, line 10-page 4, line 3; Figures 2B, 4A and 6B). This allows the claimed invention to be easily fabricated and effectively utilize the light emitted from the side surface of the semiconductor laminate portion (Application at page 3, lines 4-9; page 4, line 4-page 5, line 4).

II. THE SHAKUDA REFERENCE

The Examiner alleges that Shakuda teaches the claimed invention of claims 1-14. Applicants submit, however, that there are elements of the claimed invention which are neither taught nor suggested by Shakuda.

Shakuda discloses a light emitting device which includes stacked gallium nitride type compound semiconductor layers. The device is intended to have an enhanced luminous efficiency and life by suppressing the occurrence of crystal defects or dislocations due to mismatching of a lattice constant (Shakuda at col. 3, lines 21-28).

Applicants submit, however, that Shakuda does not teach or suggest "*a reflection surface disposed so as to be opposite to a side surface of said light-emitting layer*" as recited, for example, in claims 1 and 8.

As noted above, background art devices may include a reflection surface which is not provided on the same chip (e.g., Application at Figure 4B). In such devices, a large distance (e.g., 200-300 μm) separates the side surface of the light-emitting layer and the reflection surface. Therefore, the light component reflected is a light component within a very small angle (Application at page 22, lines 1-9).

The claimed invention, on the other hand includes a reflection surface which is provided in the same chip as the semiconductor laminate portion (Application at page 3, line 10-page 4, line 3; Figures 2B, 4A and 6B). This allows the claimed invention to be easily fabricated and effectively utilize the light emitted from the side surface of the semiconductor laminate portion (Application at page 3, lines 4-9; page 4, line 4-page 5, line 4).

Clearly, these features are not taught or suggested by the Shakuda reference. Indeed, as noted above, Shakuda is intended to improve a luminous characteristic by suppressing the occurrence of crystal defects or dislocations due to mismatching of a lattice constant. This is completely unrelated to the claimed invention which may improve luminous efficiency by forming a reflection surface in the same chip as the semiconductor laminate portion.

In fact, the Examiner does not specify which part of the Shakuda device is alleged to be equivalent to the reflection surface of the claimed invention. Indeed, column 6, lines 5-21 of Shakuda, to which the Examiner refers, is completely unrelated to the claimed invention. However, for the sake of argument, Applicant assumes that the Examiner is alleging that the n-side electrode 9 is equivalent to the reflection surface in the invention (Shakuda at Figure

2(e)). However, this is clearly incorrect.

In fact, nowhere does Shakuda teach or suggest that the n-side electrode 9 has a function of reflecting light emitted from the side surface of the light-emitting layer. An important exemplary purpose of the reflection surface of the claimed invention is reflecting light emitted from the side surface of the light-emitting layer.

Moreover, in the claimed invention, the reflection surface is opposite to a side surface of the light-emitting layer. As shown in Figure 4A of the Application, this helps to allow the claimed device to reflect light emitted from the side surface, in a direction of the optical axis of the device.

Applicants further point out that the n-side electrode 9 in Shakuda is not opposite to the side surface of the light-emitting layer 5. Instead, the electrode 9 is only opposite to the upper portion of the buffer layer 3 (Shakuda at Figure 2(e)). Therefore, the n-side electrode 9 in the Shakuda device could not possibly have an important function of the reflection surface of the claimed invention.

Therefore, Applicants respectfully submit that there are elements of the claimed invention that are not taught or suggest by Shakuda. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-22, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

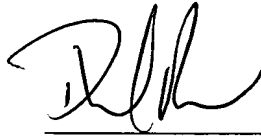
Serial No. 09/845,336
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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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